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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,203	06/26/2003	Tan Tzyy Haw	42P16893	7332
7590 04/23/2007 Blakely, Sokoloff, Taylor & Zafman Seventh Floor 12400 Wilshire Boulevard Los Angeles, CA 90025-1030			EXAMINER JOHNSON, JONATHAN J	
			ART UNIT	PAPER NUMBER
			1725	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/23/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/609,203		HAW ET AL.	
	Examiner		Art Unit	
	Jonathan Johnson		1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3-5-07</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6,8, and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's use of the term "contiguously" means "touching, in contact" according to dictionary.com. Applicant does not have support in the specification for the application to be touching the subsequent applications.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 8, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims "an application" in claim 1, ll. 3-4 but also references "the application" in claim 1, l. 5, which is not the same application as described in ll. 3-4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (6,564,986) in view of Stewart et al. (US-2003/0170450). Hsieh teaches determining an area of weakness in a ball grid array (BGA) package; first surface coupled with the IC device; a printed circuit board (PCB) having a second surface, the second surface aligned with the first surface using the array of solder balls, wherein the array of solder balls placed in between the first surface and the second surface; and solder joints to attach the array of solder balls with the first surface and the second surface (abstract; column 2, lines 53-64 and Figures); the area of weakness comprises at least one of the following: edges, corners, and perimeter of the BGA package (Figure 3C and column 2, lines 53-64), determining an area of weakness in a ball grid array, (BGA) package (abstract; column 2, lines 53-64 and Figures); determining an area of weakness in a ball grid array (BGA) package (abstract; column 2, lines 53-64 and Figures).

Stewart et al. teaches contiguously applying a bonder to the area of weakness in the BGA package, wherein contiguously means applying an application of the thermoplastic bonder at an equal distance from applications next to the application (figure 10, item 3, where the examiner interprets "contiguous" to mean in contact with" and where "equal distance" is interpreted to be

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zero and where the application of the Stewart's bonder is interpreted to be taken in discrete, units) which includes directly to the perimeter, wherein the bonder is applied to solder balls, where the solder balls are between the BGA package (paragraphs 81,109-111,114 and figure 10, item 3); where the bonder is a bonder ball (figure 11, item 5) and the bonder balls are applied surrounding the solder balls (figure 11, item 5) the bonder comprises at least one of the following: a thermoplastic bonder and a silicon bonder (paragraphs 58,77,81,109-111,114); and applying a thermoplastic bonder to an array of solder balls including in the BGA package independent of the applying of the thermoplastic bonder to the perimeter of the BGA package and (figure 12, item 3) applying a thermoplastic bonder to the area of weakness between a first surface and a second surface in the BGA package (paragraphs 58,77,81,109-111,114); applying a silicon bonder to the area of weakness between a first surface and a second surface in the BGA package (paragraphs 58,77,81,109-111,114); applying the silicon bonder prior to solder reflowing (paragraphs 58,77,81,109-111,114) and where the bonder is applied to one or more edges or corners (figure 12, item 5, 7 and 3). With respect to claims 3-4, the adhesive of Stewart et al. would prevent warpage.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the defect determining method of Hsieh with the bonder application of Stewart et al. in order to reinforce a solder ball bond with an adhesive bond when repairing a BGA (Stewart col. 1, pp. 1-10).

Claims 6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (6,564,986) and Stewart et al. (US-2003/O17045O) as applied to claims 1 and 11 above, and

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further in view of Austin et al. (6,284,173). Hsieh and Stewart et al. teach all of the limitations of the claims except applying the bonder using a bonder dispenser', the applying of the bonder comprises applying the thermoplastic bonder using a hot melting jig or a dispenser', the applying of the bonder comprises applying the silicon bonder using an epoxy dispenser machine', the independent application of the bonder is performed using software to control placement distance of the bonder with respect to the array of solder balls. Austin et al. teaches applying the bonder using a bonder dispenser; the applying of the bonder comprises applying the thermoplastic bonder using a hot melting jig or a dispenser; the applying of the bonder comprises applying the silicon bonder using an epoxy dispenser machine', the independent application of the bonder is performed using software to control placement distance of the bonder with respect to the array of solder balls (abstract; column 3, lines 38-62, column 4, lines 29-46, and column 7, lines 41-53). At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the encapsulant dispenser of Austin et al. with the determining method of Hsieh and the bonding method of Steward et al. in order to precisely position the encapsulant when repairing a BGA.

Response to Arguments

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., applying the thermoplastic bonder in close proximity without actually touching a previous application) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

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limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

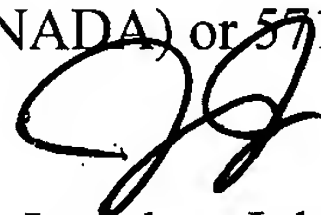
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 571-272-1177. The examiner can normally be reached on M-Th 7:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jonathan Johnson
Primary Examiner
Art Unit 1725